

## **Appendix H: Supplemental Corridor Analysis**

# Lowry Avenue North-Northeast

## Overview

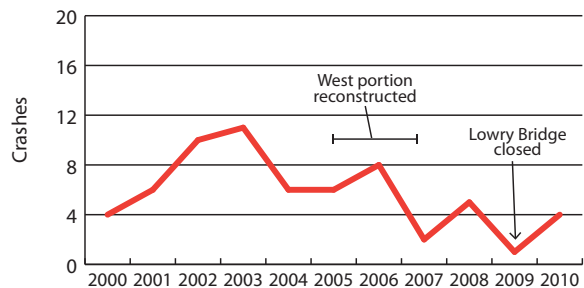
Bicyclist EDT: 100  
 Motor Vehicle AADT: 9,600-14,000  
 Corridor Length: 3.4 miles  
 Crash Rate: 55.4 crashes per one million BMT

## Description

Lowry Avenue North-Northeast is an east-west arterial connecting north and northeast Minneapolis. Bike lanes were added to the western portion of the corridor when Lowry Avenue North was reconstructed in between 2005-2007. The Lowry Avenue Bridge over the Mississippi River was closed in April of 2008 and remained closed through 2010 for the construction of a new bridge. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

## Prevalent Crash Attributes

- Bicyclist impaired
- Proximity of youth crashes
- Bicyclist disregarding a traffic control device
- Bicyclist inattentive or distracted
- Bicyclist riding across roadway, motorist following roadway
- Motorist failure to yield right-of-way



Crashes Per Year: 2000-2010

## Challenge Intersections

- Central Avenue Northeast
- Emerson and Fremont avenues
- Penn Avenue North

## Trends

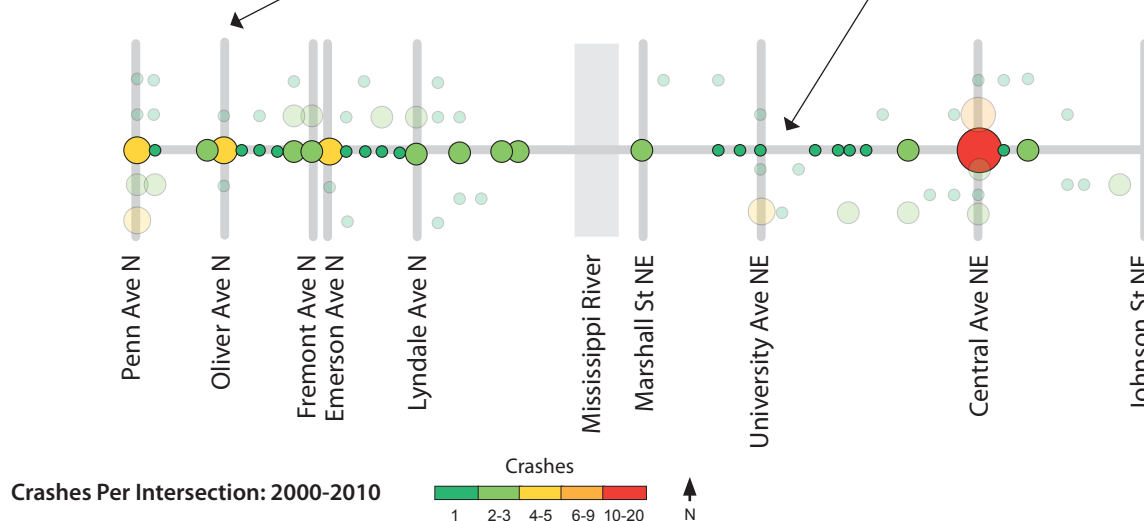
Crashes are decreasing, although this may be due to the closure of the Lowry Avenue Bridge in 2008 and subsequent effects on traffic.



Lowry Avenue North at Oliver Avenue North



Lowry Avenue Northeast east of University Avenue Northeast



# West Broadway Avenue North | Broadway Street Northeast

## Overview

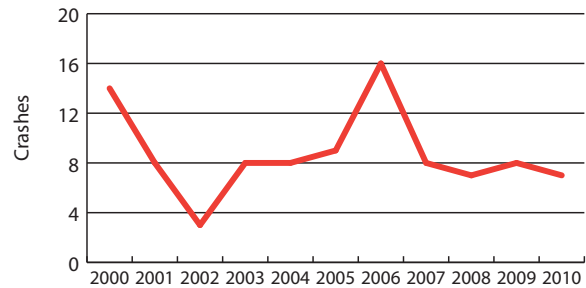
Bicyclist EDT: 210  
 Motor Vehicle AADT: 10,500-21,300  
 Corridor Length: 3.5 miles  
 Crash Rate: 39.1 crashes per one million BMT

## Description

West Broadway Avenue North-Broadway Street Northeast is an east-west arterial connecting north and northeast Minneapolis. There is a river crossing via the Broadway Avenue Bridge and access to I-94. West Broadway Avenue North and I-94 is a complex intersection and crashes are most prevalent at or near this location. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

## Prevalent Crash Attributes

- Hit and run
- Trucks (I-94)
- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Motorist left turn



Crashes Per Year: 2000-2010

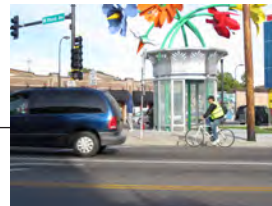
## Challenge Intersections

- Penn Avenue North
- Fremont Avenue North
- I-94
- Marshall Street Northeast

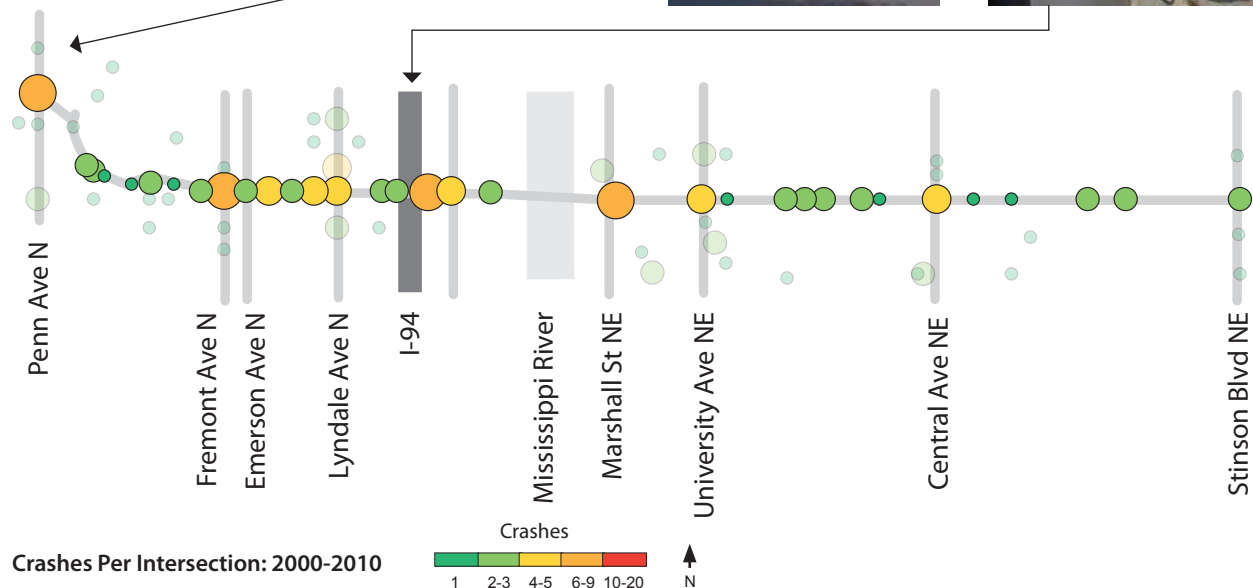
## Trends

No clear trend.

West Broadway Avenue North at Penn Avenue North



West Broadway Avenue North at I-94



# Central Avenue Northeast

## Overview

Bicyclist EDT: 410  
Motor Vehicle AADT: 12,200-14,500  
Corridor Length: 2.7 miles  
Crash Rate: 16.9 crashes per one million BMT

## Description

Central Avenue Northeast is a north-south arterial connecting northeast Minneapolis to downtown. Overall bicyclist traffic volumes are low to moderate with more traffic in the southern portion of corridor. Compared to other corridors, Central Avenue Northeast does not have a high number of crashes although there is a high concentration around Lowry Avenue Northeast

## Prevalent Crash Attributes

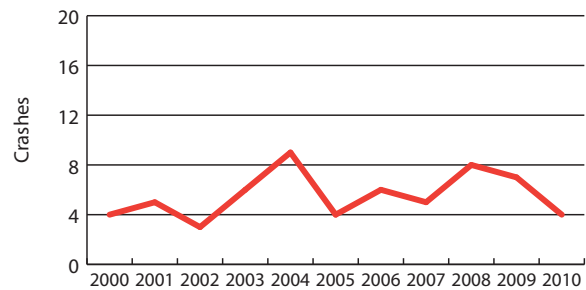
- Bicyclist inattentive or distracted
- Motorist inattentive or distracted
- Bicyclist disregarding a traffic control device
- Bicyclist riding across roadway
- Motorist failure to yield right-of-way while making a left turn (Lowry)

## Challenge Intersections

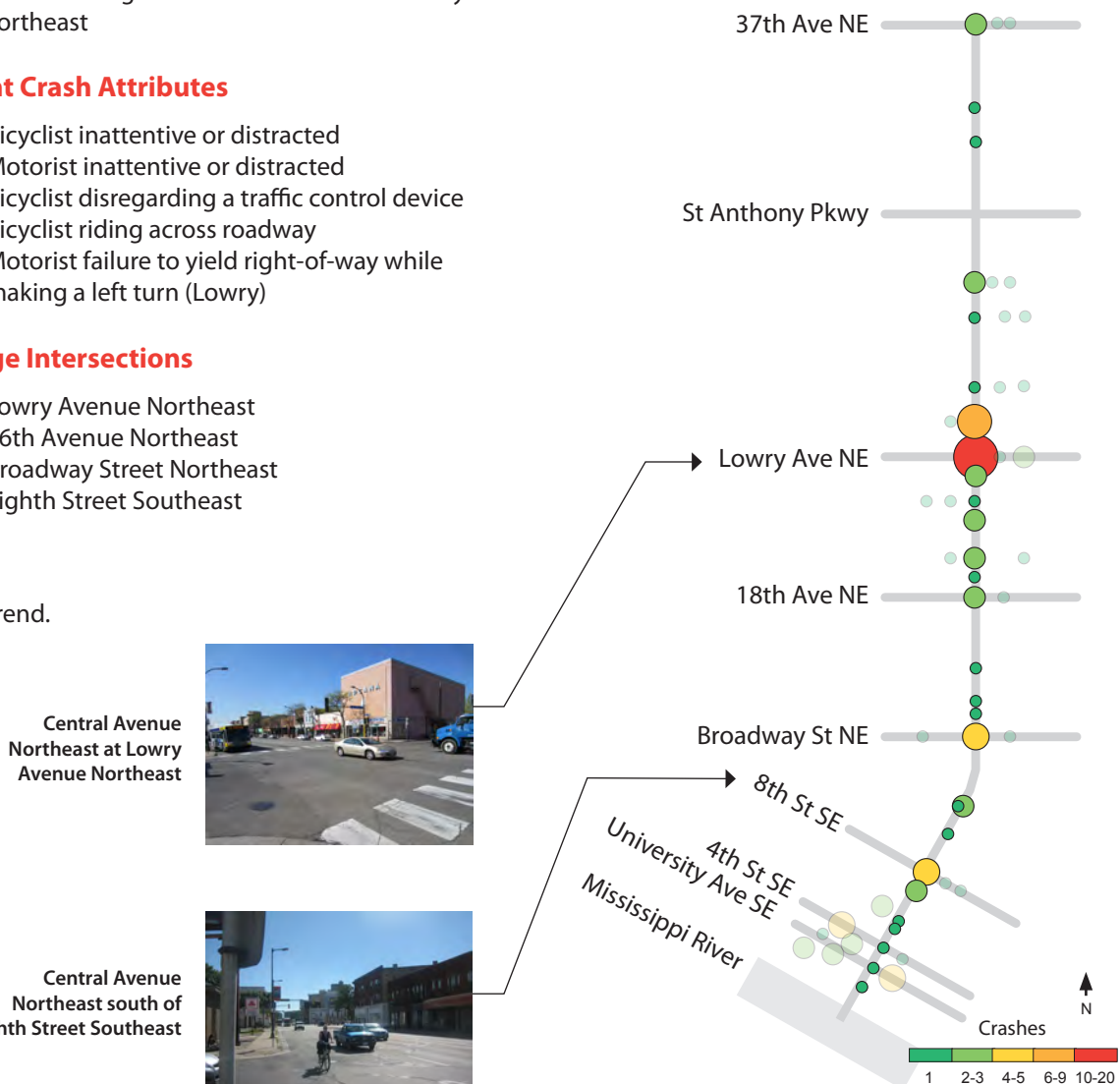
- Lowry Avenue Northeast
- 26th Avenue Northeast
- Broadway Street Northeast
- Eighth Street Southeast

## Trends

No clear trend.



Crashes Per Year: 2000-2010



## Hennepin Avenue South (Downtown) (First Avenue Northeast)

### Overview

Bicyclist EDT: 1,500  
Motor Vehicle AADT: 13,500-23,400  
Corridor Length: 2.6 miles  
Crash Rate: 9.9 crashes per one million BMT

### Description

Hennepin Avenue South is a principal arterial connecting southeast and northeast Minneapolis with downtown. Until 2009 most of the corridor was a three-lane, one-way street with a contraflow transit lane and a two-way center running bike lane. The bike lane was found to be a safety concern and a primary factor in the high number of left-hook crashes. In 2009 the street was converted to two-way, with shared lanes replacing the center bike lane.

### Prevalent Crash Attributes

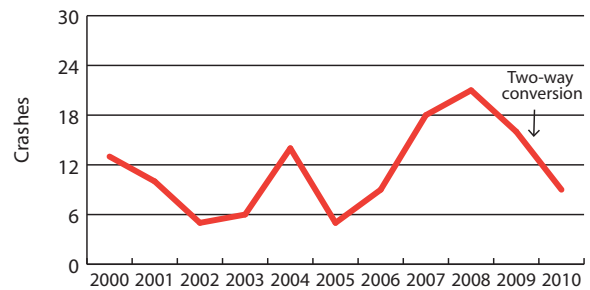
- Late night crashes
- Hit and run
- Taxi and bus crashes
- Bicyclist impaired
- Motorist failure to yield right-of-way while making a left turn

### Challenge Intersections

- Old, one-way configuration: Washington Avenue South; Third, Fifth and Seventh streets
- New, two-way configuration: Unknown

### Trends

Crashes increased leading up to the two-way conversion. Since the conversion the number of crashes have decreased, although only one full year of data is available.

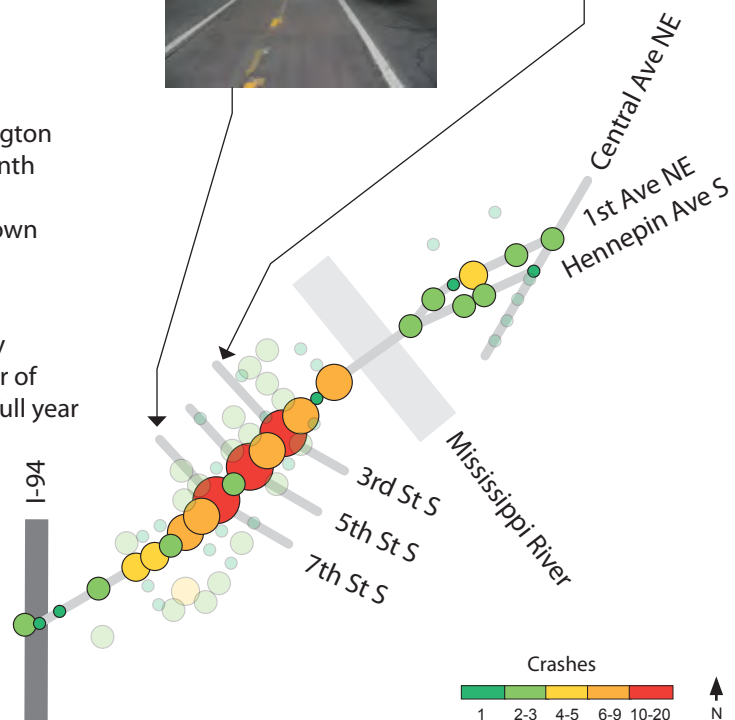


Crashes Per Year: 2000-2010

Hennepin Avenue  
north of Third Street  
South (2010)



Hennepin Avenue  
north of Seventh  
Street South (2007)



Crashes Per Intersection: 2000-2010

# University Avenue Southeast | Fourth Street Southeast

## Overview

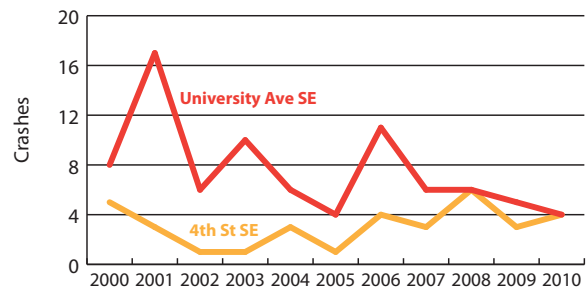
Bicyclist EDT: 740-1,000  
 Motor Vehicle AADT: 7,100-18,000  
 Corridor Length: 2.8 miles (University), 1.8 miles (4th)  
 Crash Rate: 9.0 crashes (University), 7.7 crashes (4th)  
 per one million BMT

## Description

University Avenue Southeast and Fourth Street Southeast are one-way couplets for most of this corridor. University Avenue Southeast serves eastbound traffic and Fourth Street Southeast serves west-bound traffic. A bike lane is present for most of University Avenue Southeast and on portions of Fourth Street Southeast. The streets bound the University of Minnesota campus and student housing areas, attracting high numbers of student bicyclists. Despite the high numbers of crashes, the crash rates for the corridor are one of the lowest in the city.

## Prevalent Crash Attributes

- Bicyclists age 18-24
- Bicyclist riding against traffic
- Motorist failure to yield right-of-way while



Crashes Per Year: 2000-2010

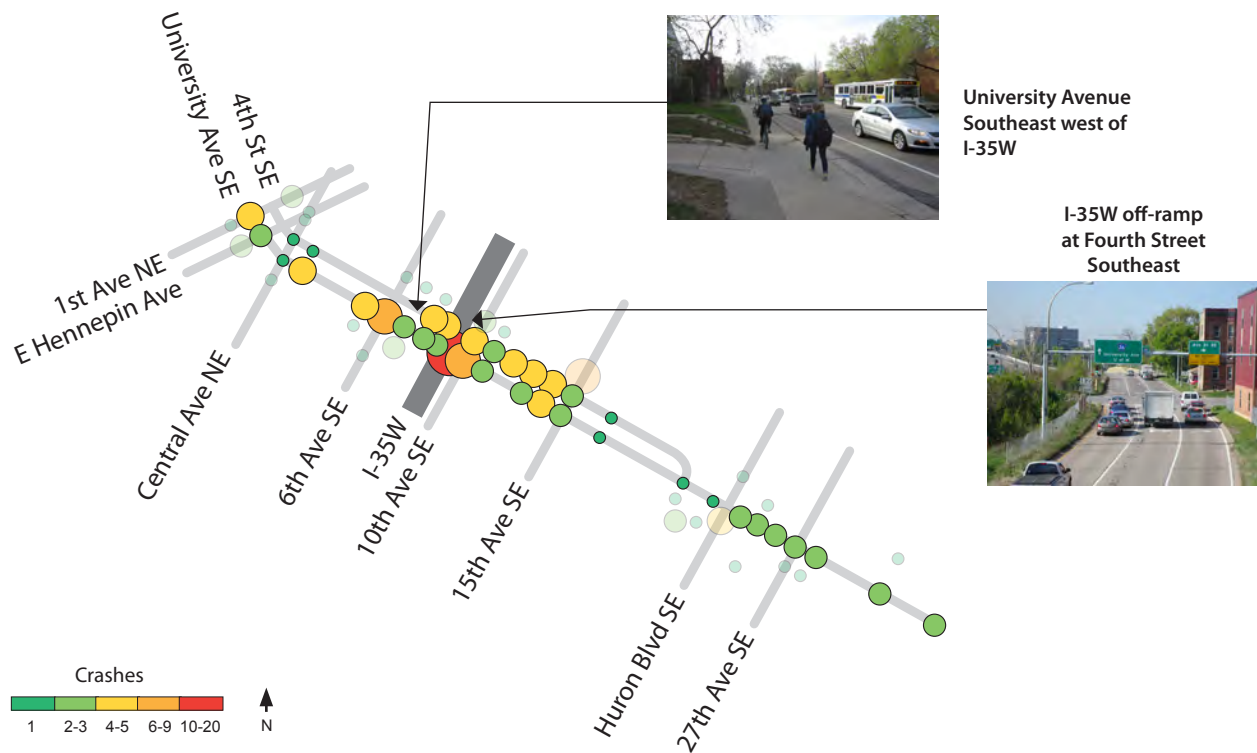
making a right turn

## Challenge Intersections

- University: Between Sixth and 15th avenues, between Huron and 27th avenues, at First Avenue Northeast and East Hennepin Avenue
- Fourth: Between Sixth and 15th avenues

## Trends

There is a downward trend of crashes on University Avenue Southeast. Crashes on Fourth Street Southeast are increasing slightly.



Crashes Per Intersection: 2000-2010

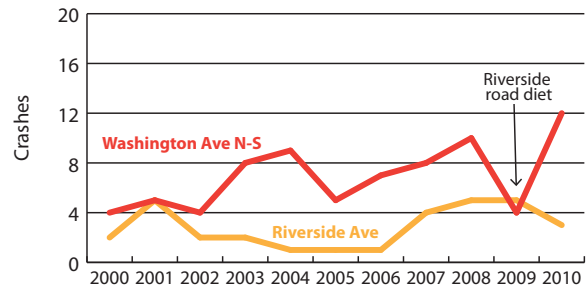
# Washington Avenue North-South | Riverside Avenue South

## Overview

Bicyclist EDT: 540-700  
 Motor Vehicle AADT: 5,700-24,000  
 Corridor Length: 1.2 miles (Washington), 0.8 miles (Riverside)  
 Crash Rate: 34.7 crashes (Washington), 17.3 crashes (Riverside) per one million BMT

## Description

Washington and Riverside avenues are diagonal corridors that stretch from southeast Minneapolis to the north side of downtown. Cedar Avenue South serves as a connection between the two streets. Riverside Avenue South connects with the University of Minnesota carrying a large share student traffic. Washington Avenue North-South is a wide corridor with high volumes of motor vehicles and access to I-35W. Riverside Avenue South underwent a road diet in 2009 and bike lanes were added. The eastern portion of the street was partially closed for reconstruction at the end of 2010.



Crashes Per Year: 2000-2010

## Prevalent Crash Attributes

- Hit and run (Washington)
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Bicyclist riding across traffic (Riverside)
- Motorist turning (Riverside)

## Challenge Intersections

- Washington: Hennepin Avenue South, Third Avenue South, I-35W
- Riverside: Cedar Avenue South, 19th Avenue South, I-94

## Trends

Crashes on Washington Avenue South are increasing slightly. Riverside Avenue South has no clear trend.



Crashes Per Intersection: 2000-2010



## Marquette Avenue South | Second Avenue South

### Overview

Bicyclist EDT: 300-370

Motor Vehicle AADT: 5,300-10,000

Corridor Length: 0.9 miles (Marquette), 0.9 miles (2nd)

Crash Rate: 39.5 crashes (Marquette), 18.0 crashes (2nd) per one million BMT

### Description

Marquette and Second avenues are one-way couplets running through downtown Minneapolis. Until 2009, the streets were configured as three-lane, one-ways with contraflow bike lanes and contraflow transit lanes. In 2009 the streets were reconstructed and converted to an express bus transit corridor with two, one-way travel lanes on each street and two transit lanes in the opposite direction. During off-peak periods the transit lanes serve as bicycle shared lanes.

### Prevalent Crash Attributes

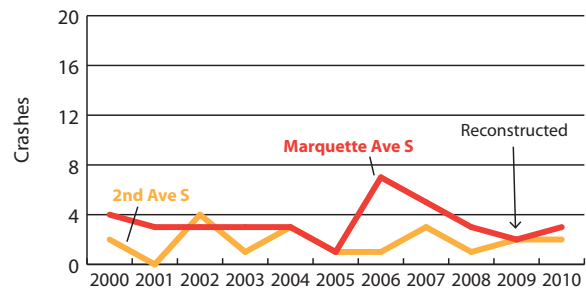
- Taxi and bus crashes
- Bicyclist failure to yield right-of-way
- Motorist failure to yield right-of-way while making a left turn

### Challenge Intersections

- Marquette: Seventh and 11th streets
- Second: Equally distributed

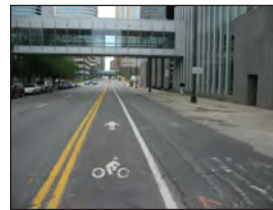
### Trends

No clear trend.

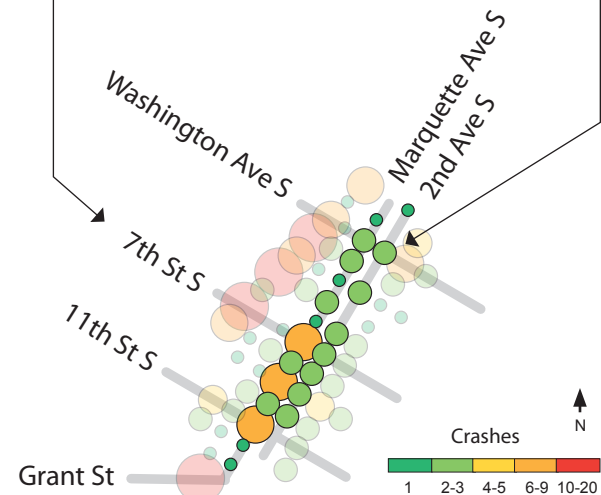


Crashes Per Year: 2000-2010

Marquette Avenue South  
south of Washington  
Avenue South (2007)



2nd Avenue South  
and Washington  
Avenue South (2010)



Crashes Per Intersection: 2000-2010



## Nicollet Mall/Avenue South | Third Avenue South

### Overview

Bicyclist EDT: 470-1,310

Motor Vehicle AADT: 6,700-13,200

Corridor Length: 1.9 miles (Nicollet), 1.3 miles (3rd)

Crash Rate: 10.7 crashes (Nicollet), 28.3 crashes (3rd) per one million BMT

### Description

Nicollet Mall is a transit and pedestrian mall running through downtown Minneapolis with high volumes of pedestrians and buses. Until 2010, bicycle traffic was prohibited during weekday, daytime hours. Bicycle traffic is now permitted at all times. At Grant Street, Nicollet Mall turns into a commercial corridor connecting to the Midtown Greenway just south of East 29th Street. Third Avenue South runs parallel to Nicollet Mall three blocks east providing a crossing over the Mississippi River and connecting to Central Avenue Northeast.

### Prevalent Crash Attributes

- Hit and run (3rd at Franklin)
- Taxi and bus
- Motorist inattentive or distracted
- Bicyclist disregarding a traffic control device (Nicollet)
- Motorist left turn (Nicollet)
- Motorist right turn (Nicollet & Franklin)

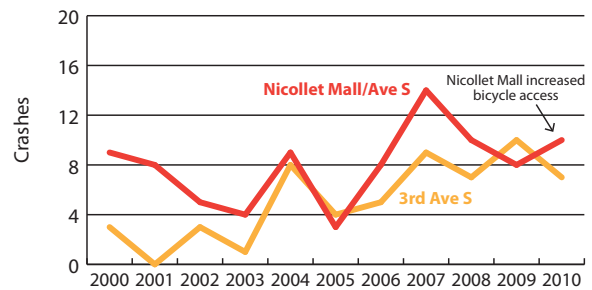
### Challenge Intersections

- Nicollet: Grant Street West 15th Street, West Franklin Avenue, West 26th Street
- 3rd: Washington Avenue South, East Franklin Avenue

Nicollet Avenue South at East Franklin Avenue



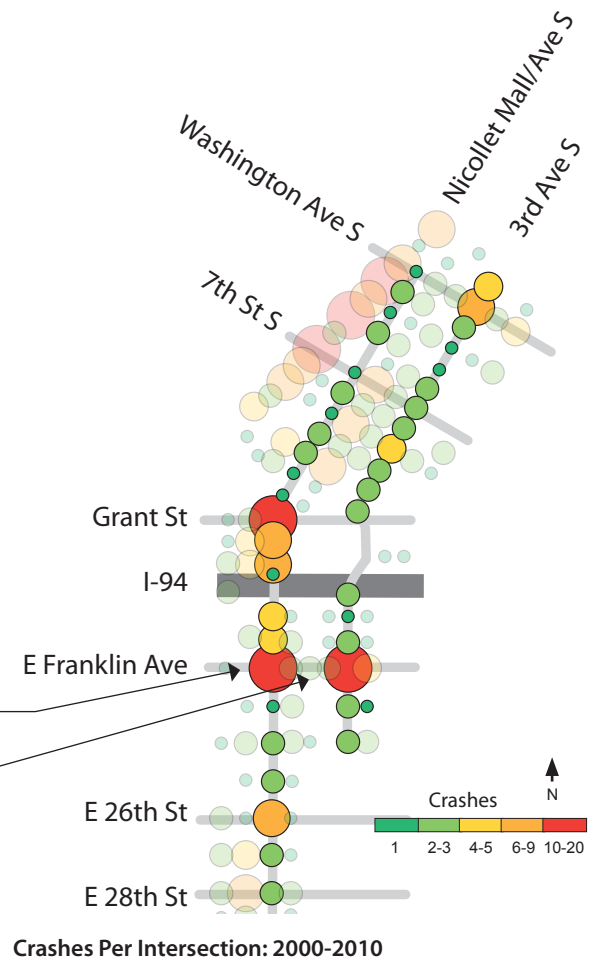
Third Avenue South at East Franklin Avenue



Crashes Per Year: 2000-2010

### Trends

Nicollet Mall-Avenue South has no clear trend. Crashes on Third Avenue South are increasing.



# East-West Franklin Avenue

## Overview

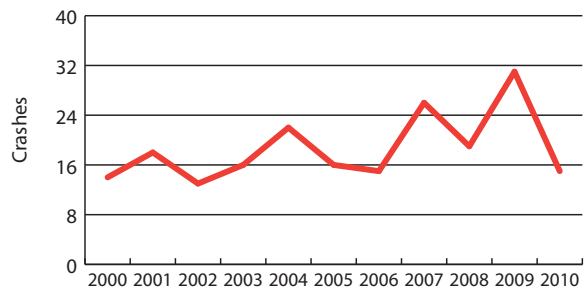
Bicyclist EDT: 760  
 Motor Vehicle AADT: 6,400-16,600  
 Corridor Length: 3.3 miles  
 Crash Rate: 25.1 crashes per one million BMT

## Description

East-West Franklin Avenue is a four lane, east-west corridor running just south of downtown Minneapolis. It crosses a number of primary north-south arterials and is also one of the few crossings over I-35W for bicyclists in the area. Bicycle traffic is quite high for most of the corridor, although the high number of crashes result in a moderately high crash rate.

## Prevalent Crash Attributes

- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic (central portion)
- Bicyclist riding across roadway
- Motorist starting in traffic
- Motorist failure to yield right-of-way while turning (prevalence of both left and right turns)



Crashes Per Year: 2000-2010

## Challenge Intersections

- Lyndale Avenue South
- Nicollet Avenue South
- Third Avenue South
- Portland Avenue South
- Park Avenue South
- Chicago Avenue South
- Cedar Avenue South
- 36th Avenue South

## Trends

Crashes are increasing.



Crashes Per Intersection: 2000-2010

# East-West 24th Street | East-West 26th Street | East-West 28th Street

## Overview

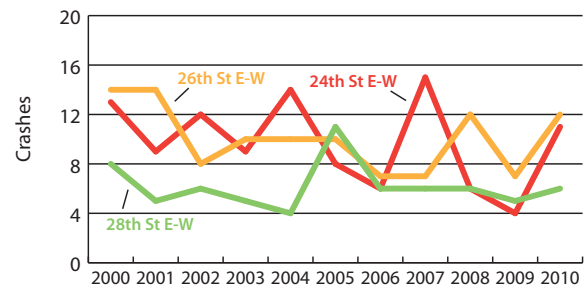
Bicyclist EDT: 170-490  
 Motor Vehicle AADT: 3,500-12,700  
 Corridor Length: 2.3 miles (24th), 2.6 miles (26th), 2.8 miles (28th)  
 Crash Rate: 18.5 crashes (24th), 39.2 crashes (26th), 68.5 crashes (28th) per one million BMT

## Description

24th, 26th and 28th streets are east-west connectors located between the principal arterials of East-West Franklin Avenue and East-West Lake Street. East-West 24th Street is a two-way street without a crossing at I-35W (although a non-ADA compliant pedestrian bridge is currently present). 26th and 28th streets are one way couplets that provide crossings at I-35W. Bicycle traffic along these corridors is relatively low and crashes are prevalent, causing the crash rate for these corridors to be high.

## Prevalent Crash Attributes

- Bicyclist impaired
- Proximity of youth crashes (east end of corridor)
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Bicyclist riding across roadway
- Motorist right turn (26th)
- Motorist left turn (28th)



Crashes Per Year: 2000-2010

## Challenge Intersections

- 24th: Lyndale Avenue South, Cedar Avenue South
- 26th: Lyndale Avenue South, Nicollet Avenue South, Park Avenue South, Portland Avenue South, Hiawatha Avenue South
- 28th: Hennepin Avenue South, Lyndale Avenue South, Nicollet Avenue South, Portland Avenue South, Chicago Avenue South, Hiawatha Avenue South

## Trends

No clear trend.



## East-West 35th Street | East-West 36th Street | East-West 38th Street

### Overview

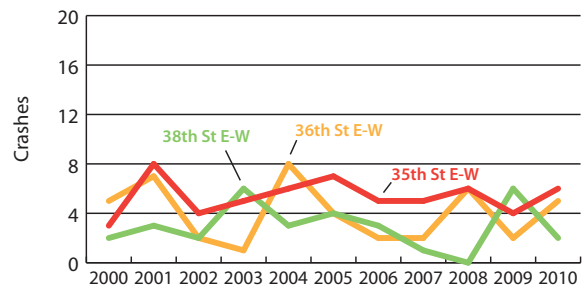
Bicyclist EDT: 140-150  
 Motor Vehicle AADT: 3,800-13,600  
 Corridor Length: 3.2 miles (35th), 2.5 miles (36th), 3.1 miles (38th)  
 Crash Rate: 37.0 crashes (35th), 25.9 crashes (36th), 30.3 crashes (38th) per one million BMT

### Description

35th, 36th and 38th streets are east-west connectors located south of East-West Lake Street. 35th and 36th streets provide access to I-35W and 35th and 38th streets connect with Hiawatha Avenue South. The nature of each of these streets varies across the length of the corridor with many sections passing through both commercial and residential areas. The busiest section surrounds 35th at I-35W. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

### Prevalent Crash Attributes

- Bicyclist disregarding a traffic control device
- Bicyclist riding across roadway (35th)
- Motorist disregarding a traffic control device (35th at I-35W)
- Motorist making right turn (35th at I-35W)



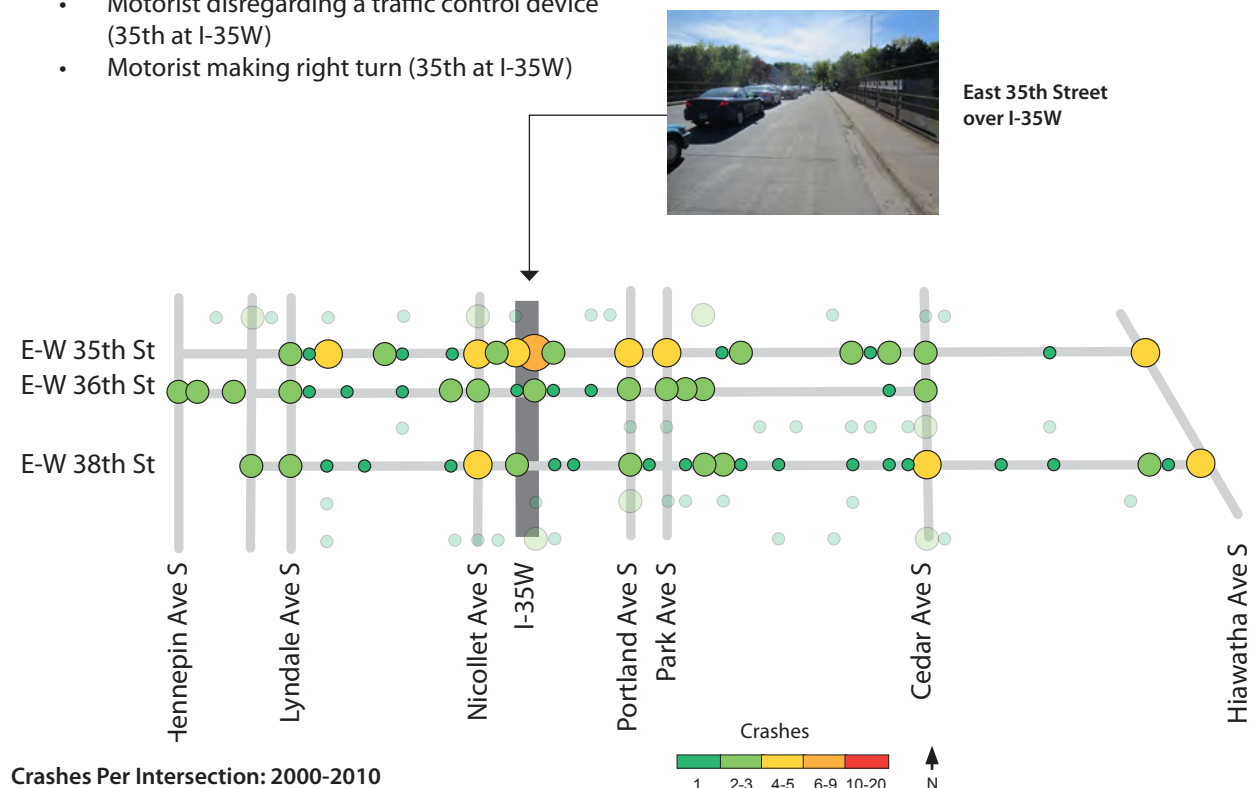
Crashes Per Year: 2000-2010

### Challenge Intersections

- 35th: Nicollet Avenue South, I-35W, Park Avenue South, Portland Avenue South, Hiawatha Avenue South
- 36th: I-35W
- 38th: Nicollet Avenue South, Cedar Avenue South, Hiawatha Avenue South

### Trends

No clear trend.



## East-West Lake Street (Lagoon Avenue) | East-West 31st Street

### Overview

Bicyclist EDT: 300-500

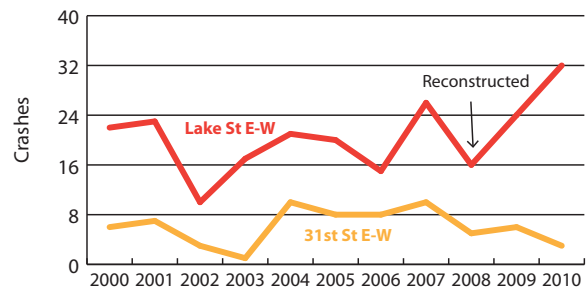
Motor Vehicle AADT: 4,300-23,600

Corridor Length: 5.4 miles (Lake & Lagoon) 2.8 miles (31st)

Crash Rate: 25.5 crashes (Lake), 23.8 crashes (31st) per one million BMT

### Description

East-West Lake Street is the busiest east-west corridor in Minneapolis and the largest commercial corridor outside of downtown. There are high volumes of pedestrian and bus traffic and moderate volumes of bicyclist traffic. East-West Lake Street was reconstructed in 2008 with enhanced pedestrian spaces. It is a unique corridor as there have been multiple crashes at nearly every intersection, with parts of East Lake Street being the exception. East-West 31st Street runs one block south of East-West Lake Street with less commercial land uses and lower traffic volumes.



Crashes Per Year: 2000-2010

### Challenge Intersections

- Lake: Entire corridor
- 31st: Portland Avenue South

### Trends

No clear trend.

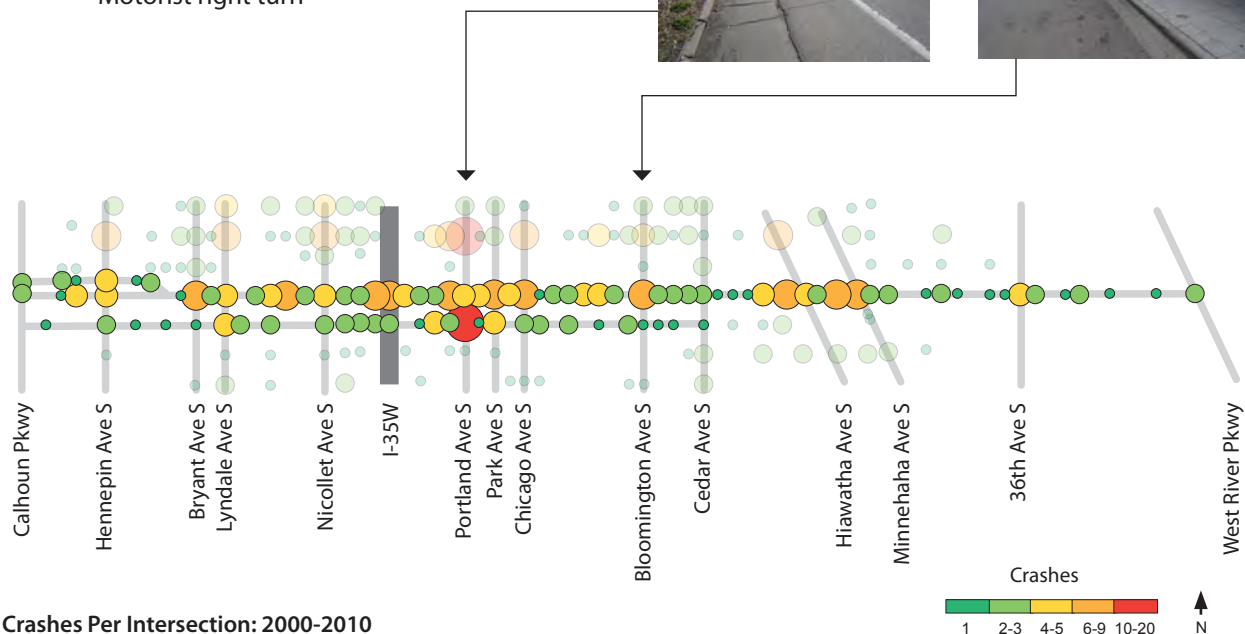
### Prevalent Crash Attributes

- Afternoon peak period
- Hit and run
- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist improper lane use
- Bicyclist riding across roadway
- Motorist right turn

East 31st Street at Portland Avenue South



East Lake Street at Bloomington Avenue South



# Hennepin Avenue (South) | Lyndale Avenue South

## Overview

Bicyclist EDT: 350-1,060  
 Motor Vehicle AADT: 12,100-29,600  
 Corridor Length: 1.3 miles (Hennepin), 3.0 miles (Lyndale)  
 Crash Rate: 36.9 crashes (Hennepin), 10.7 crashes (Lyndale) per one million BMT

## Description

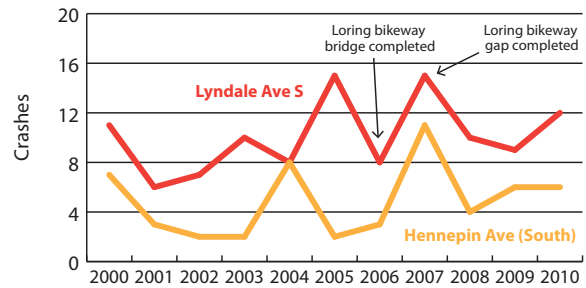
Hennepin and Lyndale avenues connect downtown with South Minneapolis. The streets filter through a bottleneck at the interchange of I-94 before splitting just north of West Franklin Avenue. A separated path runs adjacent to Lyndale Avenue South from Oak Grove Street to I-94 and connects to a pedestrian bridge, providing access to Bryant Avenue South. Bicycle traffic volumes are high along these corridors especially in the northern section. Crashes are most prevalent between Oak Grove Street and West Lake Street.

## Prevalent Crash Attributes

- Hit and run
- Bicyclist improper lane use
- Motorist failure to yield right-of-way while turning (left and right turns equally prevalent)
- Parked vehicle and inattentive motorist (assumption motorist opening door into path of bicyclist)

## Challenge Intersections

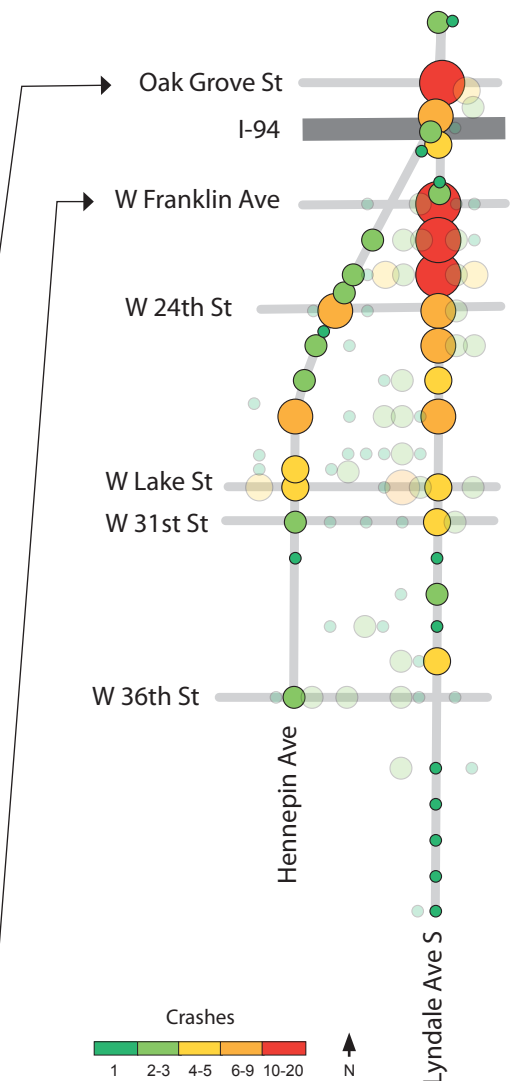
- Lyndale: Oak Grove Street, Franklin Avenue South, West 22nd Street, West 24th Street
- Hennepin: West 24th Street, West 28th Street



Crashes Per Year: 2000-2010

## Trends

No clear trend.



Crashes Per Intersection: 2000-2010



# Portland Avenue South | Park Avenue South

## Overview

Bicyclist EDT: 620-650  
 Motor Vehicle AADT: 3,600-13,000  
 Corridor Length: 4.7 miles (Portland), 3.0 miles (Park)  
 Crash Rate: 12.6 crashes (Portland), 11.8 crashes (Park) per one million BMT

## Description

Portland and Park avenues are three lane, one-way couplets connecting south Minneapolis with downtown. Park Avenue South travels north bound with more traffic in the morning peak and Portland Avenue South travels southbound, carrying mostly afternoon and outbound traffic. The streets both have one-way bikes lanes. Bicycle traffic volumes are high, making the crash rate relatively low.

## Prevalent Crash Attributes

- Hit and run
- Bicyclist failure to yield right-of-way
- Bicyclist disregarding a traffic control device
- Bicyclist maneuvers are mixed
- Motorist left turns

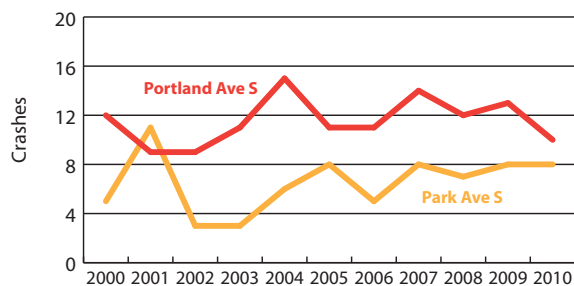
## Challenge Intersections

- Portland: East Franklin Avenue, East 26th Street, East 28th Street, East 31st Street, East 46th Street
- Park: East Franklin Street, East Lake Street

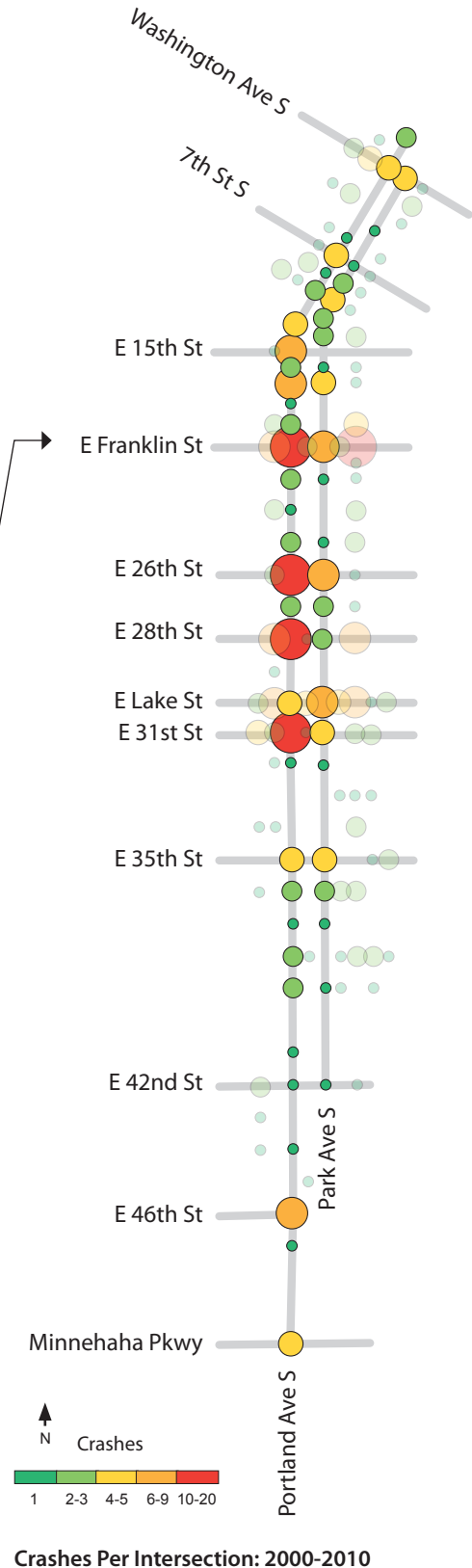
## Trends

No clear trend.

Park Avenue South  
north of East  
Franklin Avenue



Crashes Per Year: 2000-2010





# Cedar Avenue South

## Overview

Bicyclist EDT: 320  
 Motor Vehicle AADT: 13,200-17,500  
 Corridor Length: 3.3 miles  
 Crash Rate: 31.6 crashes per one million BMT

## Description

Cedar Avenue South is a north-south street from southeast Minneapolis in to south Minneapolis. Most of the corridor is a two-lane street, passing through two complex intersections: East Franklin Avenue and East 24th Street. Bicycle traffic is moderately high in the northern part of the corridor, but is likely lower in the southern portion.

## Prevalent Crash Attributes

- Hit and run
- Proximity of youth crashes
- Motorist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic (north section)
- Bicyclist riding across traffic
- Motorist left and right turns (Franklin)

## Challenge Intersections

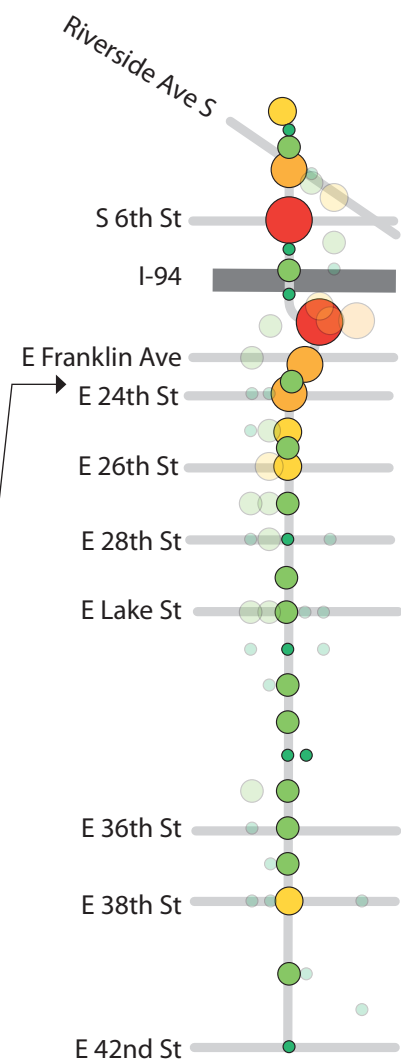
- Riverside Avenue South
- South Sixth Street
- Franklin Avenue South
- East 24th Street
- East 26th Street

## Trends

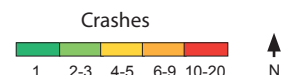
No clear trend.



Crashes Per Year: 2000-2010



Crashes Per Intersection: 2000-2010



Cedar Avenue South at East Franklin Avenue



Cedar Avenue South north of East 24th Street



# Hiawatha Avenue South | Minnehaha Avenue South

## Overview

Bicyclist EDT: 290-460  
 Motor Vehicle AADT: 5,800-32,800  
 Corridor Length: 2.7 miles (Hiawatha), 3.4 miles (Minnehaha)  
 Crash Rate: 20.9 crashes (Hiawatha), 9.6 crashes (Minnehaha) per one million BMT

## Description

Hiawatha Avenue South is an at grade, multi-lane state highway connecting southeastern Minneapolis with downtown. The Metro Blue Line opened parallel to the corridor in 2005. Minnehaha Avenue South is a parallel street. While carrying less vehicles than Hiawatha Avenue South, it still carries a significant amount of traffic. A bike path and bridge crossing (Sabo Bridge) were completed in 2007. Bike lanes existed in the southern portion of Minnehaha Avenue South but were extended to East Franklin Avenue in 2010.

## Prevalent Crash Attributes

- Hit and run
- Bicyclist disregarding a traffic control device (Hiawatha at East 26th, 28th and Lake streets)
- Bicyclist riding across roadway (Hiawatha)
- Bicyclist riding with traffic (Minnehaha)

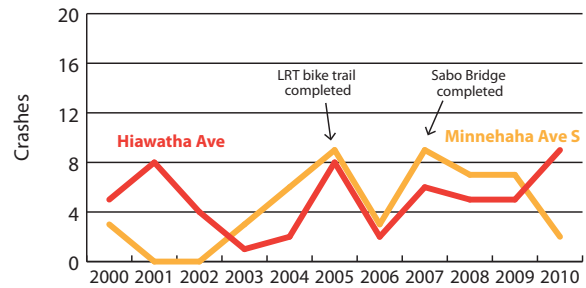
## Challenge Intersections

- Hiawatha: East 26th Street, East 28th Street, East Lake Street, East 46th Street
- Minnehaha: East Lake Street, East 46th Street

LRT Trail at East 26th Street



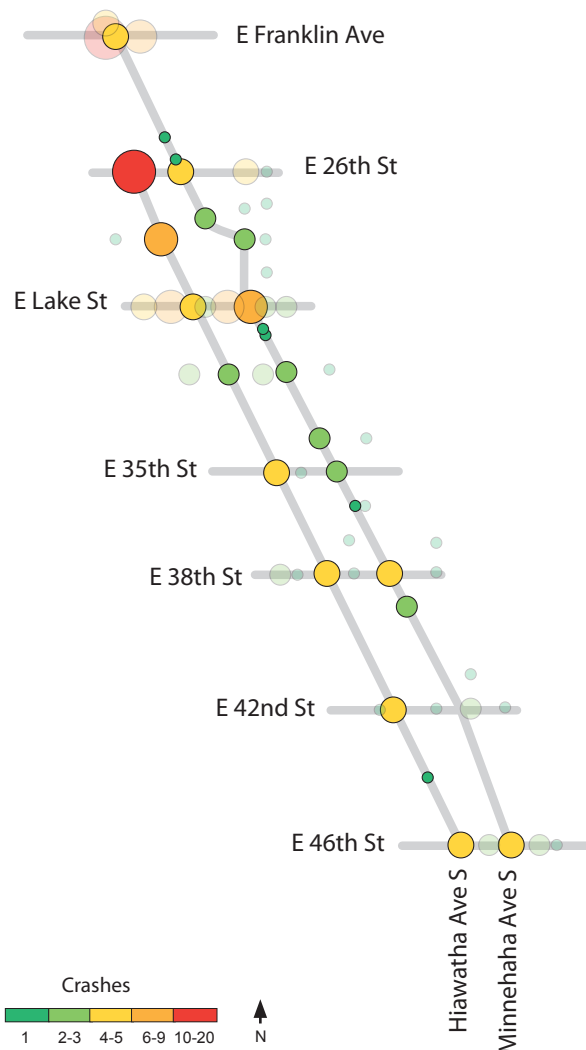
Hiawatha Avenue South at East 46th Street



Crashes Per Year: 2000-2010

## Trends

No clear trend.



Crashes Per Intersection: 2000-2010